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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/867,137 | 05/29/2001 | Joseph J. Ervin | P6451 | 7466 |

45774 7590 09/28/2004

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EXAMINER

KING, JUSTIN

ART UNIT PAPER NUMBER

2111

DATE MAILED: 09/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/867,137

Applicant(s)

ERVIN, JOSEPH J.

Examiner

Justin I. King

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-19 and 21-30 is/are pending in the application.
4a) Of the above claim(s) 21-30 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-9 and 11-19 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☒ Claim(s) 1-9, 11-19 and 21-30 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20040913.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-9 and 11-19, drawn to a wired-AND bus system with tunnel command, classified in class 710, subclass 300.
 - II. Newly added claims 21-30, drawn to a bus resetting system, classified in class 710, subclass 105.
2. Newly submitted claims 21-30 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility of resolving the address overlapping, and invention II has separate utility of isolating fault. See MPEP § 806.05(d).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 21-30 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-7 and 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schutte (6,092,138) in view of Jennings et al. (U.S. Patent No. 5,632,021) and Perlman et al. (U.S. Patent No. 5,313,465).

Referring to claim 1: Schutte discloses a bridged segmented I2C bus system connecting master devices and slave devices (figure 1), and since the I2C specification requires the rise-time specification of one microsecond, thus, Schutte's I2C bus system is constructed in considering of this rise time requirement. Thus, it discloses the claimed (a)'s limitations and (c)'s limitation of connecting master devices and slave devices to the bus segments.

Schutte discloses connecting the I2C with a bridge, but Schutte does not explicitly disclose selectively forward transactions. Jennings discloses a cascaded/tree bus bridge system connecting different bus segments (figure 3, structures 311, PCI bus 0 and 1) with bus bridges

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(figure 3, structures 315, 331 and 332). Jennings discloses that each bridge's memory base register defines the base address for determining when to forward memory transactions (column 7, lines 16-18); thus Jennings selectively forwards transactions and commands from one bus segment to another, which is the claimed limitation (b). Jennings further discloses connecting master devices and slave devices to the bus segments (figure 3, abstract), which is the claimed (c)'s limitation of connecting master devices and slave devices to the bus segments.

Neither Schutte nor Jennings explicitly discloses slave devices on different bus segments with the same address and a tunnel command. Perlman discloses a method to resolve the overlapping/same address (column 1, lines 14-15). Perlman teaches that it is know to encapsulate a packet before transmitting the packet, and the designation is within the encapsulation (column 2, lines 7-14). Thus, Perlman's packet encapsulation is the claimed tunnel command.

Hence, it would have been obvious to one having ordinary skill in the computer art at the time Applicant made the invention to adopt the teachings of Jennings and Perlman onto Schutte because Jennings teaches one to expand the capacity of a bus system and Perlman teaches one to resolve the address overlapping by encapsulation.

Referring to claim 2: Jennings discloses a memory mapping (figure 6, column 7, lines 44-45) within the bridge, which is the claimed address bitmap.

Referring to claim 3: Jennings discloses a based register and a limit register (column 7, lines 15-28), which are the claimed pair of range registers.

Referring to claim 4: Jennings discloses a tree hierarchy (figure 3).

Referring to claim 5: Jennings discloses that the bridge's registers have no default values and must be initialized (column 7, lines 18-20), and these registers include base register, limit register, and registers for address mapping (figure 6, column 7, lines 38-55). Jennings discloses that configuration software will initialize the registers' values (column 7, lines 19-20). The configuration software is the claimed programming means, and the processor executing the software is the claimed bus master.

Referring to claim 6: Jennings discloses a bus master at the root level (figure 3, structure 310, the CPU).

Referring to claim 7: Schutte discloses a bi-directional bridge (figure 1, structure 14).

Referring to claim 11: Schutte discloses a bridged segmented I2C bus system connecting master devices and slave devices (figure 1), and as the Applicant states that the I2C specification requires the rise-time specification of one microsecond, thus, Schutte's I2C bus system will be constructed in considering of this rise time requirement.

Schutte discloses connecting the I2C with a bridge, but Schutte does not explicitly disclose selectively forward transactions. Jennings discloses a cascaded/tree bus bridge system connecting different bus segments (figure 3, structures 311, PCI bus 0 and 1) with bus bridges (figure 3, structures 315, 331 and 332). Jennings discloses that each bridge's memory base register defines the base address for determining when to forward memory transactions (column 7, lines 16-18); thus Jennings selectively forwards transactions and commands from one bus segment to another. Jennings further discloses connecting master devices and slave devices to the bus segments (figure 3, abstract).

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Neither Schutte nor Jennings explicitly discloses slave devices on different bus segments with the same address and a tunnel command. Perlman discloses a method to resolve the overlapping/same address (column 1, lines 14-15). Perlman teaches that it is know to encapsulate a packet before transmitting the packet, and the designation is within the encapsulation (column 2, lines 7-14). Thus, Perlman's packet encapsulation is the claimed tunnel command.

Hence, it would have been obvious to one having ordinary skill in the computer art at the time Applicant made the invention to adopt the teachings of Jennings and Perlman onto Schutte because Jennings teaches one to expand the capacity of a bus system and Perlman teaches one to resolve the address overlapping by encapsulation.

Referring to claim 12: Jennings discloses a memory mapping (figure 6, column 7, lines 44-45) within the bridge, which is the claimed address bitmap.

Referring to claim 13: Jennings discloses a based register and a limit register (column 7, lines 15-28), which are the claimed pair of range registers.

Referring to claim 14: Jennings discloses a tree hierarchy (figure 3).

Referring to claim 15: Jennings discloses that the bridge's registers have no default values and must be initialized (column 7, lines 18-20), and these registers include base register, limit register, and registers for address mapping (figure 6, column 7, lines 38-55). Jennings discloses that configuration software will initialize the registers' values (column 7, lines 19-20). The CPU that executes the configuration software is the claimed configuration host.

Referring to claim 16: Jennings discloses a bus master at the root level (figure 3, structure 310, the CPU).

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Referring to claim 17: Schutte discloses a bi-directional bridge (figure 1, structure 14).

6. Claims 8-9 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schutte in view of Jennings and Perlman as applied to claims 1-7 and 11-17, further in view of Bell et al. (U.S. Patent No. 5,546,546).

Referring to claims 8-9 and 18-19: Jennings discloses two unidirectional bridges (figure 3, structures 331 and 332) to connect two bus segments (figure 3, structures buses 0 and 1). Neither Schutte nor Jennings explicitly discloses a bridge ID. Bell discloses a bridging system for maintaining transaction order, which each bridge includes an address mapping logic and a bridge ID (column 8, lines 6). Hence, it would have been obvious to one having ordinary skill in the computer art at the time Applicant made the invention to adopt the teaching of Bell and Jennings onto Schutte because Jennings teaches one to expand the capacity of a bridged bus system and Bell teaches one to maintain the transaction order in a bridged system.

Response to Amendment

7. In response to Applicant's amendment dated 7/28/04, which introduces a new limitation of the tunnel command. A new prior art Perlman is incorporated into the revised 103(a) Rejection above. Perlman discloses a method to resolve the overlapping/same address (column 1, lines 14-15). Perlman teaches that it is know to encapsulate a packet before transmitting the packet, and the designation is within the encapsulation (column 2, lines 7-14). Thus, Perlman's packet encapsulation is the claimed tunnel command.

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Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

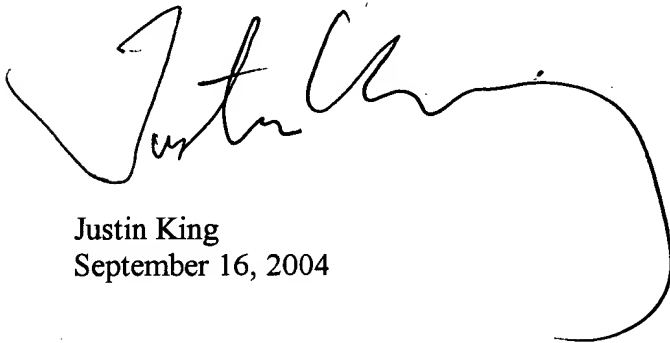
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin I. King whose telephone number is 703-305-4571. The examiner can normally be reached on Monday through Friday, 9:00 am to 5:00 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 703-308-3110. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Justin King
September 16, 2004



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